

**IN THE CLAIMS:**

Please cancel claims 3, 12 and 21 and amend the remaining claims as follows:

- 1 1. (Currently Amended) A method for a coordinated bringup of a repaired storage  
2 appliance in a storage appliance cluster, the repaired storage appliance having a disk sub-  
3 system, the method comprising the steps of:  
4       asserting a ~~GIVEWAIT~~-first state in a ~~predetermined~~-memory location of the re-  
5 paired storage appliance, the first state indicating that the repaired storage appliance  
6 awaits release of disk reservations of the disk subsystem by a surviving storage appli-  
7 ance;  
8       releasing the disk reservations in response to detection of the asserted ~~GIVE-~~  
9 ~~WAIT~~-first state by a the surviving storage appliance;  
10       initializing the disk subsystem of the repaired storage appliance;  
11       asserting a ~~MBWAIT~~-second state in ~~the predetermined~~-memory of the repaired  
12 storage appliance location, the second state indicating that the repaired storage appliance  
13 has initialized the disk subsystem; and  
14       performing a giveback operation by the surviving storage appliance in response to  
15 detecting the ~~MBWAIT~~-second state.
- 1 2. (Original) The method of claim 1 further comprising the steps of:  
2       completing the repaired storage appliance initialization; and  
3       processing data access requests by the repaired storage appliance.
- 1 3. (Cancelled)

1 4. (Currently Amended) The method of claim 1 wherein the surviving storage ap-  
2 pliance detects the ~~GIVEWAIT~~ first state by performing a remote direct memory access  
3 read operation to the ~~predetermined-memory-location~~.

1 5. (Currently Amended) The method of claim 1 wherein the surviving storage ap-  
2 pliance detects the ~~MBWAIT~~ second state by performing a remote direct memory access  
3 operation of the ~~predetermined-memory-location~~.

1 6. (Original) The method of claim 1 wherein the surviving storage appliance ceases  
2 to process data access requests directed to the repaired storage appliance after performing  
3 the giveback operation.

1 7. (Currently Amended) A storage appliance for use in a storage system cluster, the  
2 storage appliance comprising:

3 a storage operating system having a cluster failover layer adapted to perform a  
4 coordinated bringup operation in association with a partner storage appliance, wherein  
5 the coordinated bringup operation comprises the steps of:

6 (i) asserting a first state in a ~~predetermined-memory location~~ of the storage  
7 appliance;

8 (ii) initializing a disk subsystem of the repaired storage appliance in re-  
9 sponse to detecting a release of disk reservations by a partner storage appliance;

10 (iii) asserting a second state in ~~the predetermined-memory-location~~ of the  
11 storage appliance;

12 (iv) processing data access requests directed to the storage appliance after  
13 a giveback operation performed by the partner storage appliance; and

14 whereby a period of time during which clients of the storage system are without  
15 connectivity is minimized.

1 8. (Currently Amended) The storage appliance of claim 6-7 wherein the cluster  
2 failover layer is further adapted to perform routine remote direct ~~and~~ memory access read  
3 operations to the partner storage appliance to detect a state of the partner storage appli-  
4 ance.

1 9. (Currently Amended) The storage appliance of claim 8 wherein the second state  
2 comprises a ~~MBWAIT state~~ an indication that the storage appliance has initialized its  
3 disk subsystem.

1 10. (Currently Amended) The storage appliance of claim 8 wherein the first state  
2 comprises a ~~GIVEWAIT state~~ an indication that the storage appliance awaits release of  
3 disk reservations by the partner storage appliance.

1 11. (Currently Amended) A method for a coordinated bringup of a repaired storage  
2 appliance in a storage appliance cluster, the repaired storage appliance having a disk sub-  
3 system, the method comprising the steps of:  
4       asserting a first state in a ~~predetermined memory location~~ of the repaired storage  
5 appliance;  
6       releasing disk reservations in response to detection of the asserted first state by a  
7 surviving storage appliance;  
8       initializing the disk subsystem of the repaired storage appliance;  
9       asserting a second state in the ~~predetermined memory location~~ of the repaired  
10 storage appliance; and  
11       performing a giveback operation by the surviving storage appliance in response to  
12 detecting the second state.

13

1 12. (Cancelled)

- 1 13. (Original) The method of claim 11 wherein the surviving storage appliance de-  
2 tects the first state by performing a remote direct memory access read operation to the  
3 predetermined memory location.
- 1 14. (Original) The method of claim 11 wherein the surviving storage appliance de-  
2 tects the second state by performing a remote direct memory access operation of the pre-  
3 determined memory location.
- 1 15. (Original) The method of claim 11 wherein the surviving storage appliance  
2 ceases to process data access requests directed to the repaired storage appliance after per-  
3 forming the giveback operation.
- 1 16. (Currently Amended) The method of claim 11 wherein the first state comprises  
2 an indication that the repaired storage appliance awaits release of disk reservations by the  
3 surviving storage appliance ~~a GIVEWAIT state.~~
- 1 17. (Currently Amended) The method of claim 11 wherein the second state com-  
2 prises an indication that the repaired storage appliance has initialized its disk subsystem.  
3 ~~a MBWAIT state.~~
- 1 18. (Original) The method of claim 11 wherein the set of disk reservations com-  
2 prises small computer systems interface reservations.
- 1 19. (Currently Amended) A computer readable medium, including program instruc-  
2 tions executing on a storage appliance, for a coordinated bringup of a repaired storage  
3 appliance in a storage appliance cluster, the repaired storage appliance having a disk sub-  
4 system, the computer readable medium including instructions for performing the steps of:

5        asserting a GIVEWAIT-first state in a ~~predetermined-memory location~~ of the re-  
6        paired storage appliance, the first state indicating that the repaired storage appliance  
7        awaits release of disk reservations by a surviving storage appliance;  
8        releasing disk reservations in response to detection of the asserted GIVEWAIT  
9        first state by a surviving storage appliance;  
10        initializing the disk subsystem of the repaired storage appliance;  
11        asserting a MBWAIT-second state in the ~~predetermined-memory location of the~~  
12        repaired storage appliance, the second state indicating that the repaired storage appliance  
13        has initialized its disk subsystem; and  
14        performing a giveback operation by the surviving storage appliance in response to  
15        detecting the MBWAIT-second state.

1        20.        (Original) The computer readable medium of claim 19 further comprising the  
2        steps of:

3                completing the repaired storage appliance initialization; and  
4                processing data access requests by the repaired storage appliance.

1        21.        (Cancelled)

1        22.        (Currently Amended) The computer readable medium of claim 19 wherein the  
2        surviving storage appliance detects the GIVEWAIT-first state by performing a remote  
3        direct memory access read operation to the ~~predetermined-memory location of the re-~~  
4        paired storage appliance.

1        23.        (Currently Amended) The computer readable medium of claim 19 wherein the  
2        surviving storage appliance detects the MBWAIT-second state by performing a remote  
3        direct memory access operation of the ~~predetermined-memory location of the repaired~~  
4        storage appliance.

1 24. (New) A method for a coordinated bringup of a repaired storage appliance in a  
2 storage appliance cluster, the method comprising the steps of:  
3 asserting a first state indicating that the repaired storage appliance awaits release,  
4 by a surviving storage appliance, of disk reservations for a disk subsystem of the repaired  
5 storage appliance;  
6 releasing the disk reservations in response to detection of the asserted first state  
7 by the surviving storage appliance;  
8 initializing the disk subsystem of the repaired storage appliance in response to re-  
9 leasing the disk reservations by the surviving storage appliance;  
10 asserting a second state indicating that the repaired storage appliance has initial-  
11 ized the disk subsystem; and  
12 performing a giveback operation by the surviving storage appliance in response to  
13 detecting the second state.

1 25. (New) The method of claim 24, wherein the first state and second state are  
2 stored in a state data structure in memory of the repaired storage appliance.

1 26. (New) The method of claim 25 wherein the surviving storage appliance detects  
2 the first state by performing a remote direct memory access read operation to the state  
3 data structure.

1 27. (New) The method of claim 25 wherein the surviving storage appliance detects  
2 the second state by performing a remote direct memory access operation to the state data  
3 structure.

1 28. (New) A storage appliance for use in a storage system cluster, the storage appli-  
2 ance comprising:

3 a storage operating system having a cluster failover layer adapted to perform a  
4 coordinated bringup operation in association with a partner storage appliance, wherein  
5 the coordinated bringup operation comprises the steps of:

6 asserting a first state indicating that the repaired storage appliance awaits release,  
7 by a surviving storage appliance, of disk reservations for a disk subsystem of the repaired  
8 storage appliance;

9 releasing the disk reservations in response to detection of the asserted first state  
10 by the surviving storage appliance;

11 initializing the disk subsystem of the repaired storage appliance in response to re-  
12 leasing the disk reservations by the surviving storage appliance;

13 asserting a second state indicating that the repaired storage appliance has initial-  
14 ized the disk subsystem; and

15 performing a giveback operation by the surviving storage appliance in response to  
16 detecting the second state.

1 29. (New) The storage appliance of claim 28, wherein the first state and second state  
2 are stored in a state data structure in memory of the repaired storage appliance.

1 30. (New) The storage appliance of claim 29 wherein the surviving storage appliance  
2 detects the first state by performing a remote direct memory access read operation to the  
3 state data structure.

1 31. (New) The storage appliance of claim 29 wherein the surviving storage appli-  
2 ance detects the second state by performing a remote direct memory access operation to  
3 the state data structure.

1 32. (New) A computer readable medium, including program instructions executing  
2 on a storage appliance, for a coordinated bringup of a repaired storage appliance in a

3 storage appliance cluster, the computer readable medium including instructions for per-  
4 forming the steps of:

5         asserting a first state indicating that the repaired storage appliance awaits release,  
6 by a surviving storage appliance, of disk reservations for a disk subsystem of the repaired  
7 storage appliance;

8         releasing the disk reservations in response to detection of the asserted first state  
9 by the surviving storage appliance;

10         initializing the disk subsystem of the repaired storage appliance in response to re-  
11 leasing the disk reservations by the surviving storage appliance;

12         asserting a second state indicating that the repaired storage appliance has initial-  
13 ized the disk subsystem; and

14         performing a giveback operation by the surviving storage appliance in response to  
15 detecting the second state.

1 33. (New) The computer readable medium of claim 32, wherein the first state and  
2 second state are stored in a state data structure in memory of the repaired storage appli-  
3 ance.

1 34. (New) The method of claim 33 wherein the surviving storage appliance detects  
2 the first state by performing a remote direct memory access read operation to the state  
3 data structure.

1 35. (New) The method of claim 33 wherein the surviving storage appliance detects  
2 the second state by performing a remote direct memory access operation to the state data  
3 structure.